



Reduced carcinogens. Premium taste.™

Carcinogen Reduction Results

Massachusetts Method Chart

In 1997, the Massachusetts Department of Public Health implemented changes to the way it tested and rated cigarette yields to more closely approximate most smoking behaviors. The Massachusetts method consists of 45 ml puffs of 2-second duration every 30 seconds with 50% of the filter ventilation holes blocked.

* Denotes Carcinogens

** Denotes Results Generated by Vector Tobacco

King-Size Full Flavor	Omni	Leading Competitive Brand	% Change
PAHs			
benzo[a]pyrene (ng/cig)*	10.04	12.32	-18.5%
acenaphthylene (ng/cig)* **	58.68	98.75	-40.6%
acenaphthene (ng/cig)* **	36.72	65.01	-43.5%
dibenzofuran (ng/cig)**	75.46	110.16	-31.5%
fluorene (ng/cig)* *	175.20	272.82	-35.8%
phenanthrene (ng/cig)* **	143.98	197.31	-27.0%
anthracene (ng/cig)*	43.12	74.65	-42.2%
2-methylanthracene (ng/cig)* **	58.62	91.34	-35.8%
fluoranthene (ng/cig)*	51.50	64.82	-20.6%
pyrene (ng/cig)*	37.20	52.11	-28.6%
2,3-benzofluorene (ng/cig)* *	52.38	68.78	-23.8%
chrysene (ng/cig)* **	18.80	24.42	-23.0%
benzo[b/k]fluoranthene (ng/cig)*	11.98	14.26	-16.0%
benzo[e]pyrene (ng/cig)* **	5.89	8.35	-29.4%
Carbonyls			
formaldehyde (µg/cig)*	97.1	65.3	49%
acetaldehyde (µg/cig)*	989	1339	-26%
acetone (µg/cig)	349	610	-43%
acrolein (µg/cig)	122	165	-26%
propionaldehyde (µg/cig)	67	117	-43%
crotonaldehyde (µg/cig)	32.5	60.5	-46%
butyraldehyde (µg/cig)	37.9	81.1	-53%
methyl ethyl ketone (µg/cig)	83	186	-56%
acetophenone (µg/cig)	202	425	-53%

hydrogen cyanide (µg/cig)	30.2	43.3	-31%
Carbon Monoxide (mg/cig)	24.1	26.3	-8%
Nitric Oxide (µg/cig)	1066	465	129%
Trace Metals			
palladium (ng/cig)	9.0	BQL	N.A.
nickel (ng/cig)*	BQL	BQL	N.A.
lead (ng/cig)*	9.1	50.9	-82%
cadmium (ng/cig)*	62.1	128.0	-51%
chromium (ng/cig)*	BQL	BQL	N.A.
arsenic (ng/cig)*	7.3	14.0	-48%
selenium (ng/cig)	BQL	4.8	N.A.
Nitrosamines			
NNN (ng/cig)*	259	319	-19%
NNK (ng/cig)*	82	242	-66%
NAT (ng/cig)	244	266	-8%
NAB (ng/cig)	44.5	36.8	21%
Semivolatiles			
pyridine (µg/cig)	14.5	40.4	-64%
3-vinylpyridine (µg/cig)	3.7	9.2	-60%
quinoline (ng/cig)	419	874	-52%
Phenols			
catechol (µg/cig)*	85	112	-24%
phenol (µg/cig)	16	36	-56%
hydroquinone (µg/cig)	62	108	-43%
resorcinol (µg/cig)	1.35	3.20	-58%
m,p-cresol (µg/cig)	10	23	-57%
o-cresol (µg/cig)	3.67	8.65	-58%
Tar (mg/cig)	25.7	32.1	-20%
Nicotine (mg/cig)	1.5	2.2	-32%
Volatiles			
1,3-butadiene (µg/cig) *	66.6	83.9	-21%
isoprene (µg/cig) *	497	916	-46%
acrylonitrile (µg/cig)*	16.5	27.0	-39%
benzene (µg/cig)*	52.8	96.1	-45%
toluene (µg/cig)	77	179	-57%
styrene (µg/cig)*	10.3	24.0	-58%

BQL = Below Quantifiable Limits
N.A. = Not Applicable

Footnotes:

* **Denotes Carcinogens** - Several groups have developed lists of carcinogens in tobacco smoke: the International Agency for Research on Cancer (IARC); the US Surgeon General's list of harmful constituents in tobacco smoke; the National Toxicology Program; the American Health Foundation. In addition, there is also other research. Although these lists vary, somewhere between 40-70 of the approximately 5,000 compounds in tobacco smoke are considered to be carcinogenic, probably carcinogenic, or possibly carcinogenic in humans.

** **Denotes Results Generated by Vector Tobacco** - Omni cigarettes have been extensively tested for reduced levels of carcinogens and other toxins in both mainstream and sidestream smoke. The following chart provides Omni test results from an independent laboratory using both the FTC and the Massachusetts methods of analysis. The chart also includes Omni test results, generated by Vector Tobacco, using innovative technologies to determine the concentrations of a number of polycyclic aromatic hydrocarbons (PAHs) that are not currently examined by any independent laboratory.

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